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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,601	07/11/2006	Sylvain Benezech	1606.75506	8803
24978 7590 03/05/2010 GREER, BURNS & CRAIN 300 S WACKER DR 25TH FLOOR CHICAGO, IL 60606				
EXAMINER				
DUONG, THO V				
ART UNIT		PAPER NUMBER		
3744				
MAIL DATE		DELIVERY MODE		
03/05/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/585,601

Applicant(s)

BENEZECH ET AL.

Examiner

Tho v. Duong

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/CD)
Paper No(s)/Mail Date 4/15/08
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claims 1 and 11, the claimed limitation of "each channel being interposed between two neighbouring channels of the network being, over the whole of its developed length" renders the scope of the claim indefinite since if each channel is interposed between two neighbouring channel, it is not sure how the outermost channel is interposed between two any two channels. Furthermore, the limitation of "adjacent to these two neighbouring channels from which it is isolated by two respective weld line connecting the two metal sheet" renders the scope of the claim indefinite since it is not clear whether applicant is claiming that the welding lines are adjacent to the neighbouring channels and isolate one channel from the other channel or the neighbouring channels are adjacent to each other and these two neighbouring channels are isolated from other channels.

Regarding claim 7, the limitation of "the overall variation in the cross-section of one of the paths is in the same direction as a variation in the flow rate of gas in this path intended for a phase change process" renders the scope of the claim indefinite since it is not clear what applicant is claiming since the variation of the cross-section of the path (smaller or bigger) and the variation of the flow rate such as (faster or slower) are not in the same dimensional factor, it is not clear how it is in the same direction.

Regarding claim 16, the limitation of “each channel interposed between two neighbouring channels of the network being adjacent over its whole developed length to these neighbouring channels from which it is isolated by two respective weld lines joining the two metal sheets” renders the scope of the claim indefinite since it is not clear what is adjacent to what and since if each channel is interposed between two neighbouring channel, it is not sure how the outermost channel is interposed between any two channels. Furthermore, it is not clear whether “it” represent “channel” or the “two neighbouring channels”.

Claims 1-16 are further rejected as can be best understood by the examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9, 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Brown et al. (US 6,470,878). Brown discloses (figures 1-3) a heat exchanger comprising modules defining a first path for a first fluid, each comprising two metal sheets forming between them a network of channels which are located in parallel with each other from the fluidic point of view, each channel interposed between two neighbor channels; weld lines connect the two metal sheets; a second path for a second fluid is defined between the modules and an overall variation in a passage cross section over the length of at least one paths with continuity of the profiles of the channels; the pitch between weld lines varies progressively over at least part of the length of the channels of one module; the inflation of the metal sheets of a module varies progressively over at

least part of the length of the channels; the arrangement of the modules in relation to each other produces an overall variation in the passage cross section over the length of the second path. Regarding claim 7, the it has been held that a recitation (intended for a phase change process) with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitation. Ex parte Masham, 2 USPQ2d 1647. Regarding claim 8, the planes that the modules are located in, are parallel to each other. Regarding claim 9, Brown discloses modules are in convergent planes where two sheets of the module are joined.

Claims 1-9, 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Reinke et al. (US 6,109,254). Reinke discloses (figures 3-5) a heat exchanger comprising modules defining a first path for a first fluid, each comprising two metal sheets forming between them a network of channels which are located in parallel with each other from the fluidic point of view, each channel interposed between two neighbor channels; weld lines connect the two metal sheets; a second path for a second fluid is defined between the modules and an overall variation in a passage cross section over the length of at least one paths with continuity of the profiles of the channels; the pitch between weld lines varies progressively over at least part of the length of the channels of one module; the inflation of the metal sheets of a module varies progressively over at least part of the length of the channels; the arrangement of the modules in relation to each other produces an overall variation in the passage cross section over the length of the second path. Regarding claim 7, the it has been held that a recitation (intended for a phase change process) with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed

structural limitation. Ex parte Masham, 2 USPQ2d 1647. Regarding claim 8, the planes that the modules are located in, are parallel to each other. Regarding claim 9, Reinke discloses modules are in convergent planes where two sheets of the module are joined.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown/Reinke in view of Wakisaka Nobuaki (JP 57192798). Brown/Reinke discloses all of applicant's claimed invention as discussed above except for the limitation that longitudinal edges, each forming an angle with the other, each being almost parallel to a respective outside line of weld. Wakisaka discloses (figure 7) a heat exchanger that has a longitudinal edge almost parallel to the connecting line and form angle with the other longitudinal edge for a purpose of enhancing the heat transfer rate of the heat exchanger. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Wakisaka's teaching in either Brown or Reinke's device for a purpose of enhancing the heat transfer rate of the heat exchanger.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Claudet et al. (US 6,289,977) discloses a heat exchanger and related welding method.

Longsworth et al. (US 4,763,725) discloses a parallel wrapped tube heat exchanger.

R. W. Daveport (US 1,622,376) discloses an apparatus for refrigerating system.

Aid (US 4,574,876) discloses a container with tapered walls for heating and cooling fluids.

Shimoya et al. (US 5,137,082) discloses a plate type refrigerant evaporator.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tyler J. Cheryl can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tho v Duong/
Primary Examiner, Art Unit 3744

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